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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/606,200	06/29/2000	Govind Malalur	P108339-09064	8167

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EXAMINER	
LEE, TIMOTHY L	

ART UNIT	PAPER NUMBER
2662	6

DATE MAILED: 03/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/606,200	MALALUR, GOVIND	
	Examiner	Art Unit	
	Timothy Lee	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-58* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *23-52, 56, 57 and 58* is/are allowed.

6)☒ Claim(s) *1-15, 17-21 and 53-55* is/are rejected.

7)☒ Claim(s) *16 and 22* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-7 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larson (US 4,424,565) in view of Warner et al. (US 6,289,015), further in view of Munter et al. (US 6,381,247).

3. Regarding claims 1 and 53, Larson discloses a channel interface circuit in a multiprocessor environment to provide a high speed interface between a processor and the communication channel which interconnects all the processors. Fig. 7 illustrates some typical table loading contents of DMA control table 107, which circuit functions as a hardware address generator. State controller 104 activates lead ENABLE either upon receipt of a match signal or upon the completion of the data message and the receipt of an appropriate signal from error checker 103 on lead STATE, indicating the receipt of an error free message (DMA descriptor including a reload field). See col. 9, lines 53-63. An update method is to have DMA transfer unit 108 update the data in DMA control table 107 to reflect the new starting address for data stored based on the data message just stored in processor memory 201 (identifying a location of a next DMA descriptor based upon the condition of the reload field). See col. 10, lines 6-23. In loading the table, the processor 200, by applying appropriate signals on the processor control and address buses, enables memory device 111 to receive and store data from the processor data bus.

See col. 5, lines 64-67. Based on this, the processor does not have to use the communications channel 101 to communicate with the table (CPU access to the lookup table without requiring communication on the communication channel). See also the connection diagram on Figs. 1 and 2. Larson does not expressly disclose snooping the communication channel for lookup table information or transmitting this information to create a second copy in remote memory. .

4. Warner et al. discloses a process of constructing a lookup table. The address lookup device snoops the bus for the purpose of learning both the source and the destination addresses of the received packet (constructing a table by snooping a communication channel in a network switch for lookup table information). See col. 5, lines 5-10; col. 6, lines 32-35. It is inherent in the purpose of snooping disclosed by Warner et al. that the lookup information will include insert messages for newly found addresses and delete messages for addresses that are found to be no longer active. Neither Warner et al. nor Larson expressly discloses transmitting the lookup table information to a remote memory.

5. Munter et al. discloses that copies of information, like lookup tables, may be kept at the individual memory devices as opposed to only having this information available at the location where the master lookup table exists. See col. 13, lines 9-13.

6. It would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the "learning" ability found in Warner et al. into the DMA storage system of Larson. One would have been motivated to do this because the table needs to be updated periodically to reflect changes in network configuration that can occur when nodes are added or deleted from the system. Sending a packet to a destination that no longer exists is a waste of resources. It would have been obvious to also copy the table information as taught in Munter et

al. to a remote memory location in the combination of Larson and Warner et al.. One would have been motivated to do this because having a copy of the lookup tables at remote memories could help reduce congestion on the general communication line. See col. 13, lines 8-13 of Munter et al. for this motivation. One would have been motivated to do this alternately because having a backup copy of the table would have be helpful if the main table was to be corrupted in some fashion.

7. Regarding claim 2, as mentioned previously, it is inherent in the purpose of snooping disclosed by Warner et al. that the lookup information will include insert messages for newly found addresses and delete messages for addresses that are found to be no longer active.

8. Regarding claim 3, as mentioned previously, Larson discloses that if the ENABLE signal is set to a certain way, the DMA will continue loading information into certain addresses of the table.

9. Regarding claim 4, as mentioned previously, Larson discloses that the table is connected to a processor.

10. Regarding claim 5, if the ENABLE is not set in Larson, then it is possible that DMA operations will occur starting at another location. It depends on the type of class and the type of the message. See col. 10, lines 2-15 and col. 10, lines 44-50.

11. Regarding claim 6, as shown in Fig. 2 of Larson, the processor interacts with various memories, including the processor memory (system memory is dedicated for CPU operation).

12. Regarding claim 7, it is inherent in the discussion of Munter et al. that the main lookup table and the remote lookup table are synchronized periodically. It would defeat the purpose of having a remote table if the table was not updated with current information.

13. Claims 8-15 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Warner et al. (US 6,289,015) in view of Murthy et al. (US 5,610,905), further in view of Munter et al..

14. Regarding claims 8 and 54, Warner et al. discloses a process of constructing a lookup table. The address lookup device snoops the bus for the purpose of learning both the source and the destination addresses of the received packet (constructing a table by snooping a communication channel in a network switch for lookup table information). See col. 5, lines 5-10; col. 6, lines 32-35. It is inherent in the purpose of snooping disclosed by Warner et al. that the lookup information will include insert messages for newly found addresses and delete messages for addresses that are found to be no longer active. Warner does not expressly disclose transmitting the lookup table information to a remote memory or measuring port activity and sending those measurements to a remote memory.

15. Murthy et al. discloses an apparatus and method where ports can be monitored. Port monitoring is a process by which packets arriving or generated internally may be copied to one or more monitoring ports. A monitoring device 9 attached to the monitoring port 10 is then able to provide analysis of the monitored packets (reading the port activity data with a statistics gathering unit). These devices analyze packet traffic on a network and provide various diagnostic information enabling the network manager to locate problems, evaluate performance, and determine appropriate adjustments to network parameters. See at least col. 18, lines 22-34. Neither Murthy et al. or Warner et al. expressly disclose sending the port information or lookup table information to a remote memory.

16. Munter et al. discloses that copies of information, like lookup tables, may be kept at the individual memory devices as opposed to only having this information available at the location where the master lookup table exists. See col. 13, lines 9-13.

17. It would have been obvious to a person of ordinary skill in the art at the time of the invention to include the port monitoring functions taught by Murthy et al. in the system disclosed by Warner et al.. One would have been motivated to do this because it would be a waste of resources to transmit to a destination found in the lookup table that connected to a "dead" port. If the system monitored each port in order to know if it wasn't operating at acceptable capacity, the system could save valuable bandwidth by not even transmitting to that particular destination. It also would have been obvious to store the port and table information at a remote location as disclosed by Munter et al.. One would have been motivated to do this because having a copy of the lookup tables at remote memories could help reduce congestion on the general communication line. See col. 13, lines 8-13 of Munter et al. for this motivation. One would have been motivated to do this alternately because having a backup copy of the table would have be helpful if the main table was to be corrupted in some fashion.

18. Regarding claim 9, it is inherent in the purpose of snooping disclosed by Warner et al. that the lookup information will include insert messages for newly found addresses and delete messages for addresses that are found to be no longer active.

19. Regarding claim 10, Warner et al., Munter et al., nor Murthy et al. discloses using DMA in transferring the port activity data. Larson, as mentioned previously, used DMA in transferring information. It would have been obvious to use DMA as taught by Larson to transfer port

information. One would have been motivated to do this because DMA operations would simplify the process of transferring information.

20. Regarding claim 11, in Warner et al., a special address-lookup device looks up information in the address table, and inherently, this device is a type of CPU. See col. 4, lines 54-65.

21. Regarding claims 12 and 14, concerning port monitoring, Murthy et al. does not expressly disclose monitoring at predetermined intervals or at certain clock cycles. However, it would have been obvious to a person of ordinary skill in the art at the time of the invention to monitoring the ports as taught by Murthy et al. at predetermined intervals. One would have been motivated to do this because if something goes wrong with port, measuring at short intervals will give a quick indication that the port should not be used anymore.

22. Regarding claim 13, in Warner et al., the DRAM exists to store the table and for running the processor.

23. Regarding claim 15, it is inherent in the discussion of Munter et al. that the main lookup table and the remote lookup table are synchronized periodically. It would defeat the purpose of having a remote table if the table was not updated with current information.

24. Claims 17-21 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larson in view of Murthy et al, further in view of Munter et al.

25. Regarding claims 17 and 55, Larson discloses a channel interface circuit in a multiprocessor environment to provide a high speed interface between a processor and the communication channel which interconnects all the processors. Fig. 7 illustrates some typical table loading contents of DMA control table 107, which circuit functions as a hardware address

generator. State controller 104 activates lead ENABLE either upon receipt of a match signal or upon the completion of the data message and the receipt of an appropriate signal from error checker 103 on lead STATE, indicating the receipt of an error free message (DMA descriptor including a reload field). See col. 9, lines 53-63. An update method is to have DMA transfer unit 108 update the data in DMA control table 107 to reflect the new starting address for data stored based on the data message just stored in processor memory 201 (identifying a location of a next DMA descriptor based upon the condition of the reload field). See col. 10, lines 6-23. In loading the table, the processor 200, by applying appropriate signals on the processor control and address buses, enables memory device 111 to receive and store data from the processor data bus. See col. 5, lines 64-67. Based on this, the processor does not have to use the communications channel 101 to communicate with the table (CPU access to the lookup table without requiring communication on the communication channel). See also the connection diagram on Figs. 1 and 2. Larson does not expressly disclose port monitoring where this monitoring information is sent to a remote memory location.

26. Murthy et al. discloses an apparatus and method where ports can be monitored. Port monitoring is a process by which packets arriving or generated internally may be copied to one or more monitoring ports. A monitoring device 9 attached to the monitoring port 10 is then able to provide analysis of the monitored packets (reading the port activity data with a statistics gathering unit). These devices analyze packet traffic on a network and provide various diagnostic information enabling the network manager to locate problems, evaluate performance, and determine appropriate adjustments to network parameters. See at least col. 18, lines 22-34.

Neither Murthy et al. or Larson. expressly disclose sending the port information or lookup table information to a remote memory.

27. Munter et al. discloses that copies of information, like lookup tables, may be kept at the individual memory devices as opposed to only having this information available at the location where the master lookup table exists. See col. 13, lines 9-13.

28. It would have been obvious to a person of ordinary skill in the art at the time of the invention to include the port monitoring functions taught by Murthy et al. in the system disclosed by Larson. One would have been motivated to do this because it would be a waste of resources to transmit to a destination that connected to a "dead" port. If the system monitored each port in order to know if it wasn't operating at acceptable capacity, the system could save valuable bandwidth by not even transmitting to that particular destination. It also would have been obvious to store the port and table information at a remote location as disclosed by Munter et al.. One would have been motivated to do this because having a copy of the lookup tables at remote memories could help reduce congestion on the general communication line. See col. 13, lines 8-13 of Munter et al. for this motivation. One would have been motivated to do this alternately because having a backup copy of the table would have be helpful if the main table was to be corrupted in some fashion.

29. Regarding claim 18, as mentioned in Larson, the processes involving storage of information are controlled through DMA.

30. Regarding claim 19, as mentioned previously, Larson discloses that if the ENABLE signal is set to a certain way, the DMA will continue loading information into certain addresses of the table.

31. Regarding claims 20 and 21, concerning port monitoring, Murthy et al. does not expressly disclose monitoring at predetermined intervals or at certain clock cycles. However, it would have been obvious to a person of ordinary skill in the art at the time of the invention to monitoring the ports as taught by Murthy et al. at predetermined intervals. One would have been motivated to do this because if something goes wrong with port, measuring at short intervals will give a quick indication that the port should not be used anymore.

Allowable Subject Matter

32. Claims 23-52 and 57-58 are allowed.

33. Claims 16 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

34. Applicant's arguments with respect to claims 1-58 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy Lee whose telephone number is (703)305-7349. The examiner can normally be reached on M-F, 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (703)305-4744. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TLL
Timothy Lee
March 9, 2004

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